BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the	)	
	)	
PUBLIC UTILITIES COMMISSION	)	DOCKET NO. 03-0371
	)	
Instituting a Proceeding to	)	
Investigate Distributed Generation	)	
in Hawaii	)	
	)	

HESS MICROGEN, LLC'S

TESTIMONY OF MICHAEL GREGG AND MICHAEL DE'MARSI

and

CERTIFICATE OF SERVICE

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In the Matter of the Public Utilities Commission
Instituting a Proceeding to Investigate Distributed Generation in Hawaii
Docket No. 03-0371

Testimony of Michael Gregg

on behalf of Hess Microgen, LLC

Q PLEASE STATE YOUR NAME AND GIVE YOUR BUSINESS ADDRESS.

A My name is Michael Gregg. I am Vice President of Sales and Marketing for Hess Microgen, LLC, a subsidiary of Amerada Hess. My business address is 12 Industrial Parkway, Unit B-1; Carson City, Nevada 89706.

Q WHO IS SPONSORING YOUR TESTIMONY IN THIS DOCKET, DOCKET NO. 03-0371?

A I am appearing on behalf of Hess Microgen, LLC.

Q PLEASE STATE YOUR CURRENT RESPONSIBILITIES FOR HESS MICROGEN.

A I am responsible for all sales and marketing for Hess Microgen, LLC.

Q PLEASE STATE THE NATURE OF HESS MICROGEN'S INTEREST IN THESE PROCEEDINGS.

A Hess Microgen manufactures, installs, operates, finances, and maintains packaged CHP systems. Hawaii is one of our target markets for these systems. Therefore, the policies and framework for distributed generation projects deployed in Hawaii developed in this Docket, as well as, all of the generic distributed generation issues affecting the electric industry in Hawaii that will be addressed in this Docket will have an effect on Hess Microgen's current and future projects in Hawaii.

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A The purpose of my testimony is to provide information to the Hawaii Public Utilities Commission concerning Hess Microgen's position in regards to the role of Distributed Generation, and specifically packaged CHP systems, in Hawaii and how it can benefit the State of Hawaii in its efforts to reduce its dependency on fossil fuels.

Q PLEASE SUMMARIZE THE MAIN POINTS OF YOUR TESTIMONY.

A The Main points of my testimony are as follows:

(i) To express Hess Microgen's position in regards to who should own and operated distributed generation projects in Hawaii.

(ii) To express Hess Microgen's position in regards to the role of the regulated electric utility companies and the Hawaii Public Utilities Commission in the Deployment of distributed generation in Hawaii.

(iii) To express Hess Microgen's position in regards to what revisions should be made to the State Administrative Rules and Utility Rules and Practices to Facilitate the Successful Deployment of Distributed Generation in Hawaii.

Q WHAT IS HESS MICROGEN'S POSITION IN REGARDS TO WHO SHOULD OWN AND OPERATED DISTRIBUTED GENERATION PROJECTS IN HAWAII?

A Distributed Generation should be owned and operated by both regulated electric utility companies and private companies to provide customers with the most options. The regulated electric utility companies and private companies offer customers distinct options in regards to ownership, installation, maintenance, and rates. These distinct options will permit customers to select the provider that will best meet their needs for reliable power at a fair cost.

Q WHAT IS THE ROLE OF THE HAWAII PUBLIC UTILITIES COMMISSION IN THE DEPLOYMENT OF DISTRIBUTED GENERATION IN HAWAII?

A The role of the Commission is to regulate the utilities to insure that they provide ratepayers with reliable power at a fair price. Also, the Commission's role should be to insure that the ratepayers have options to best meet their need for reliable power at a fair price. The Commission should insure that the utilities are dealing fairly and in a timely manner with the private companies who are offering Distributed Generation to customers.

Thus, the Commission should insure that the utilities and the private companies are competing on a level playing field. For example, the utilities should not be allowed to charge customers of the private companies standby charges or other fees and charges that it does not charge its Distributed Generation customers. Nor, should the utilities be allowed to provide their Distributed Generation customers with special discounts to the disadvantage of private companies.

Q WHAT REVISIONS SHOULD BE MADE TO THE STATE ADMINISTRATIVE RULES TO ASSIST IN THE DEPLOYMENT OF DISTRIBUTED GENERATION IN HAWAII?

A Let me just say, that I am not an expert in Hawaii Administrative Rules, however, I would suggest the following additions to the Rules:

(i) Set procedures and time limits for negotiations with private companies offering DG technologies and the utilities in regards to interconnection agreements;

(ii) Set procedures and time limits for the Commission to deal with dispute between private companies offering DG technologies and the utilities in regards to interconnection agreements; and

(iii) If it is decided in this Docket that the utilities should be permitted to offer DG systems, along with private companies, that set procedures and rules be established to insure that the utilities and the private companies play by the same rules.

Q DOES THIS CONCLUDE YOUR TESTIMONY?

A Yes.

In the Matter of the Public Utilities Commission
Instituting a Proceeding to Investigate Distributed Generation in Hawaii
Docket No. 03-0371

Testimony of Michael de'Marsi

on behalf of Hess Microgen, LLC

Q PLEASE STATE YOUR NAME AND GIVE YOUR BUSINESS ADDRESS.

A My name is Michael de'Marsi. I am a manager of the combined heat and power ("CHP") unit of Hess Microgen, LLC, a subsidiary of Amerada Hess. My business address is 4101 Halburton Road; Raleigh, NC 07095.

Q WHO IS SPONSORING YOUR TESTIMONY IN THIS DOCKET, DOCKET NO. 03-0371?

A I am appearing on behalf of Hess Microgen, LLC.

Q PLEASE STATE YOUR CURRENT RESPONSIBILITIES FOR HESS MICROGEN.

A I am responsible for the ongoing development of CHP systems, modeling the impacts of CHP on facilities, the overall maintenance and operation of the CHP systems, and the electrical interconnections of our facilities with the various electric utility companies.

Q PLEASE STATE THE NATURE OF HESS MICROGEN'S INTEREST IN THESE PROCEEDINGS.

A Hess Microgen manufactures, installs, operates, finances, and maintains packaged CHP systems. Hawaii is one of our target markets for these systems. Therefore, the policies and framework for distributed generation projects deployed in Hawaii developed in this Docket, as well as, all of the generic distributed generation issues affecting the electric industry in Hawaii that will be addressed in this Docket will have an effect on Hess Microgen's current and future projects in Hawaii.

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A The purpose of my testimony is to provide information to the Hawaii Public Utilities Commission concerning the reliability of packaged CHP systems and how it can benefit the State of Hawaii in its efforts to reduce its dependency on fossil fuels.

Q PLEASE SUMMARIZE THE MAIN POINTS OF YOUR TESTIMONY.

A The Main points of my testimony are as follows:

(i) To provide information on the benefits of CHP.

(ii) To express the reliability of CHP package systems.

(iii) To provide an informed opinion of how CHP will be part of the future electric supply.

Q WHAT ARE THE BENEFITS OF CHP?

A CHP is an electricity generating system whose waste heat is captured and used for heating and/or cooling applications. The key benefit of CHP, and the reason why it has garnered support nationally and in other states, is that it is inherently more efficient and environmentally friendlier than conventional electric generated power. Conventional electrical generation wastes a substantial portion of fuel energy by allowing heat created in the generation process to escape into the atmosphere in the form of thermal pollution.

Unfortunately, most power plants have no use for this heat, nor do they have customers close enough to the heat source to make recapturing the heat economical. However, since customers often use electricity to heat water or air, the power plants must generate substantially more electricity to sell to customers to replace the heat energy that was wasted at the plant. This lack of efficiency results in an increase in the fuel burned by the utility to generate electricity, and consequently can increase pollution levels.

On-site CHP systems capture the heat used in electric production to be used for domestic hot water, kitchen and laundry hot water, boiler preheat water, warm air curtains and pools, and absorption-based air conditioning. Because of the captured heat, a CHP customer will use less fuel than a straight electric customer. In addition to these cost-saving energy efficiency benefits, customers also derive some intangible benefits through use of on-site CHP. For example, many customers are able to achieve higher water temperature for kitchens and laundries, resulting in a decreased use of sanitizing chemicals. In addition, customers that are at the end of the electrical utility circuits report better voltage support with packaged CHP systems.

Q ARE PACKAGE CHP SYSTEMS A FEASIBLE AND VIABLE FORM OF DISTRIBUTED GENERATION FOR HAWAII?

A Yes. CHP is a very feasible and viable form of Distributed Generation for Hawaii because it is: (i) reliable; (ii) available and can meet the needs of peak demand; and (iii) easy to site because it has a small footprint.

Q **WHAT IMPACTS WILL CHP SYSTEMS HAVE ON HAWAII'S ELECTRIC TRANSMISSION AND DISTRIBUTION SYSTEM?**

A The implementation of CHP systems in Hawaii will delay and/or replace transmission and distribution ("T&D") facilities needed by the utilities. Thus, reducing the capital cost of the utilities, and in turn, reducing the rates for ratepayers. Additionally, on-site DG will benefit traditional utilities' systems. It is my understanding that one of the complaints of the utilities is that they must build the infrastructure to carry the peak customer load and system load; however, the system peak only occurs for a portion of the day. As a result, utilities' systems in general are not fully utilized. On site package CHP systems operates when the customer requires the most electricity and heat. If the customers do not have high electricity and heat requirements at night, for example, the on-site package CHP system can be turned off. The practice of turning off on-site generation when both the customer and the utility are experiencing low demand serves to levelize the utility's system demand and increase the overall utilization of the distribution system. The net effect is that the utility may not have to add new facilities or upgrade its infrastructure as often. This will result in lower prices to the ratepayers.

A **ARE THERE ANY OTHER IMPACTS?**

Q Yes. On-site CHP package systems also have the potential to provide voltage support to areas on the utility distribution system where voltage support is tenuous. Finally, because on-site CHP packaged systems are closer to the load there is reduction in the traditional T&D line losses that are usually experienced by the traditional utilities systems.

A **ARE THERE ANY EXTERNALITIES IMPACTS ?**

Q Yes. CHP is environmentally friendlier than tradition utility generated energy because it avoids emissions from (i) the reduced thermal energy that is generated due to CHP; (ii) the actual and displaced production of pollutant emissions; and (iii) the emission attributable to T&D losses that do not occur.

Second, with CHP systems it is possible to add capacity incrementally, which can help address uncertainties with respect to the need for new central station generation and with respect to the permitting (and, therefore, completion) of such facilities. That means that the utility has the

benefit of spreading out CHP systems over time. For private companies, it means it can offer DG systems to customers in a manner that is the most cost-effective for them.

Third, the deployment of CHP systems will delay and/or replace T&D facilities needed by the utilities.

Finally, the addition of energy efficient CHP packaged systems is a step closer in meeting the State of Hawaii's energy policy to reduce the use of fossil fuels.

A **WILL ON-SITE CHP PACKAGE SYSTEMS IMPROVE POWER QUALITY?**

Q Yes. The implementation of on-site CHP package systems in Hawaii will improve power quality through steady voltage regulation, reduced sags and surges, and improved reactive power control. Also, when on-site CHP package systems are located near the end use load, it will reduce energy losses in the transmission, subtransmission, and distribution systems.

A **WILL ON-SITE CHP PACKAGE SYSTEMS IMPROVE POWER RELIABILITY?**

Q Yes, on-site CHP package systems are more reliable today than ever before, largely due to computer controls that can warn of problems before they occur. Each system can be programmed to call for maintenance any time an out-of-tolerance condition is noted. The maintenance is then scheduled with the customer and the utility for an off-peak time for repair.

A **WHAT FACTORS MUST BE CONSIDERED TO ALLOW AN ON-SITE CHP SYSTEM TO INTERCONNECT WITH THE ELECTRIC UTILITY GRID?**

Q Impact to the customer and the rest of the system under normal and abnormal conditions need to be considered. It is important to add, that any process regarding interconnection must be (i) fair; (ii) provide the private companies with all relevant information so that they can respond; and (iii) timely.

A **ARE YOU FAMILIAR WITH HECO'S RULE 14.H INTERCONNECTION STANDARDS?**

Q Yes.

A **DOES HECO'S RULE 14.H COVER ALL OF THE ISSUES RELATED TO INTERCONNECTION WITH THE ELECTRIC UTILITY GRID?**

Q HECO's Rule 14.H is certainly a positive first step and I applaud them for its adoption. However, I believe that some areas of Rule 14.H could be improved. For example: (i) all of the standards in Appendix I (Distributed Generating Facility Interconnection Standards Technical Requirements) should be based on the National Interconnection Standard IEEE (Institute of Electrical and Electronics Engineers) 1547 and deviations to this Standard should only be allowed if both parties clearly demonstrate that the specific site application requires a deviation; and (ii) Appendix III (Interconnection Process Overview) should include specific criteria to inform the Customer when additional technical study is needed and how long the additional technical study will take and cost .Also, there should be a limit to the time and cost to the additional technical study.

A **WHY IS IT IMPORTANT TO HAVE HECO'S RULE 14.H FOLLOW THE IEEE STANDARDS?**

Q The standards are in place to address issues of safety and grid integrity. When generation is connected to an electric grid, the safety of the utility's and other party's employees, the utility's customers, and the general public must be given top priority. In addition, safety and reliability is enhanced with standardization. Having non-standard sites will cause confusion; therefore, derivation to the protection and safety requirements should only be made for clearly essential reasons.

A **WHAT TYPE OF SPECIFIC CRITERIA TO INFORM THE CUSTOMER WHEN ADDITIONAL TECHNICAL STUDY IS NEEDED WOULD YOU SUGGEST?**

Q As a starting point, I would suggest the criteria established by Rule 21 for Southern California Edison. Under Rule 21, no supplemental technical review is required if a customer meets the following requirements: provides a complete application for interconnection; the proposed interconnection equipment is certified for the proposed application; the aggregate generating facility capacity on the line section is less than 15% of the circuit load; the starting voltage drop screen is met; the gross generating facility capacity is 10 MW or less; the short circuit current contribution screen is met; and the line configuration screen is met.

1 **Q DOES THIS CONCLUDE YOUR TESTIMONY?**

2 A Yes.

CERTIFICATE OF SERVICE

I hereby certify that I have this date served copies of Hess Microgen, LLC Testimony of Michael Gregg and Michael de'Marsi upon the following parties, by causing copies hereof to be mailed, postage prepaid, and properly addressed to each such party as follows:

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DATED: Honolulu, Hawaii, July 14, 2004

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